De Jong, Meyer and Martineau noted, on the other hand, that malignant development not infrequently ensues after the application of a tar preparation to a varicose ulcer. This sequence of events deserves special and serious consideration, as it is still common practice to use epithelial proliferation stimulating ointments, containing scarlet red and related substances, in the treatment of these sluggishly healing ulcerative defects.

While the cause or causes for an exceptional malignant transformation of crural varicose ulcers are unknown, it seems to be possible that they are not so much related to endogenous factors as to specific exogenous ones.

The following data are available concerning the incidence of cancerous transformations in varicose ulcers of the leg. Nobb found one such tumor among 200 cases of crural varicose ulcers present in 4,000 inmates of an old age institution. De Asis observed one malignant complication among 310 cases of varicose ulcers of 6 months to 30 years' duration, present in individuals of cancer age. Tenopyr and Silverman analyzed 1,000 cases of chronic ulcer of the leg and noted 4 cancers which developed on the basis of these crural lesions. Grosser reported that only 6 carcinomas among 368 carcinomas of the extremities developed on the basis of a varicose ulcer. Michael, on the other hand, recorded 8 cases of malignant varicose ulcer among 26 cancers on the extremities. Additional individual cases were reported by Knox (2 cases); von Volkmann (24 cases); Druckenmüller (2 cases); Mondor and Olivier; and others. A bilateral occurrence of carcinoma in varicose ulcers was reported by Druckenmüller as well as Grosser.

While varicose ulcers are more common in men than in women, Knox noted a practically equal distribution of cancers of this genesis among the two sexes (53 cases: 28 males, 25 females). The age distribution of 49 cases was as follows: 30-39 years, 3 cases; 40-49 years, 13 cases; 50-59 years, 14 cases; 60-69 years, 17 cases; 70-79 years, 2 cases. The duration of the ulcer preceding the onset of the malignant development varied, in 28 cases, between 10 and 40 years (average, 21 years) and was seldom shorter (6 months) (White).

The onset of malignancy was often indicated by the appearance of increased pain and the rapid growth of cauliflower-like masses in the margins of the ulcer as well as by a rapid extension of the crater. The ensuing neoplasm was either of the fungoid or of the infiltrative type. Because of the existing impaired blood supply, a relatively slow growth rate was observed, while metastases occurred late on account of obliterated lymphatics existing in the dermatitic skin. The carcinomas were of the epidermoid variety.

Attention may be called to the fact that carcinomas of the lower limb, originating on the basis of a chronic ulcer, are more frequent among the inhabitants of the Dutch East Indies, where crural infectious ulcers are more common than among the population of northern climates (Bonne).

### VI. OSTEOMYELITIC FISTULAS

Epidermal malignancy may arise occasionally in and around chronic osteo-